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How is Reconstruction Constrained?

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1 Proposal

This paper proposes that reconstruction obeys a minimality condition stated in (1).

(1) Minimality Condition on Reconstruction (MCR)

* $X_1 \dots Y \dots t_1$, where X and Y are structurally non-distinct.



X and Y are structurally non-distinct iff X and Y have undergone the same type of movement.

In what follows, I will lend support to the MCR by examining reconstruction of scrambled phrases in Japanese.

2 Evidence for Minimality Conditions on Reconstruction

2.1 Multiple Scrambling and Scope (Un)ambiguity

The first piece of evidence comes from the lack of scope ambiguity in multiple scrambling constructions. It is well known that scrambling in Japanese, though generally scope rigid in non-scrambled structures, exhibits scope ambiguity if one quantified expression is scrambled over another, as shown in (2).

- (2) a. Dareka-ga daremo-o sonkeisiteiru
someone-Nom everyone-Acc admire
'Someone admires everyone.' ($\exists > \forall$, $*\forall > \exists$)
b. [Daremo-o]₁ dareka-ga t₁ sonkeisiteiru
everyone-Acc someone-Nom admire ($\exists > \forall$, $\forall > \exists$)

The standard, and presumably the simplest, account for the scope ambiguity of example (2b) is to suppose that the scrambled object may freely be reconstructed (Hoji 1985).

However, giving the freedom for reconstruction to scrambled phrases leads to the prediction that when two quantified expressions are scrambled, one can be reconstructed across the other, thereby yielding inverse scope.

This prediction is not borne out. Consider (3):

- (3) a. John-ga [_{IO} dareka-ni] [_{DO} daremo-o] syookaisita
 John-Nom someone-Dat everyone-Acc introduced
 ‘John introduced everyone to someone.’ ($\exists > \forall$, $*\forall > \exists$)
 b. [_{IO} dareka-ni] [_{DO} daremo-o] John-ga _{t_{IO}} _{t_{DO}} syookaisita
 someone-Dat everyone-Acc John-Nom introduced
 ($\exists > \forall$, $*\forall > \exists$)

Here both non-scrambled and scrambled structures allow only surface scope. (The observation is attributed to Yatsushiro 1996.) The lack of inverse scope in the scrambled structure is unexpected under the assumption that scrambled phrases can freely undergo reconstruction, an assumption needed to account for the scope ambiguity of (2b). If there is no constraint on reconstruction, it should be possible for the IO alone to undergo reconstruction beneath the DO, which would wrongly yield a wide scope reading for the universal. In order to prevent this derivation, we need to posit that a scrambled phrase cannot be reconstructed across another scrambled phrase, which falls under the MCR. Note that reconstruction of a scrambled phrase across a non-scrambled phrase, as seen in (2b), is unproblematic for the MCR.¹

2.2 Remnant Movement: Deriving Müller’s Generalization

In this subsection, I would like to take up remnant movement and demonstrate that the MCR has the ability to derive a constraint on remnant movement known as Müller’s Generalization (MG), given in (4).

(4) Müller’s Generalization (Müller 1996, 1998):

A configuration “[_{YP}...t_{XP}...]_{XP}...t_{YP}” is allowed only if XP and YP are moved by a different movement rule.

¹Yatsushiro (1996) observed that when the two objects are scrambled so that the DO precedes the IO, as in (i), the resulting structure exhibits scope ambiguity.

(i) [_{DO} dareka-o] [_{IO} daremo-ni] John-ga _{t_{IO}} _{t_{DO}} syookaisita
 everyone-Acc someone-Dat John-Nom introduced
 ‘John introduced everyone to someone.’ ($\exists > \forall$, $\forall > \exists$)

I suppose that the wide reading for the DO results from an LF representation that is transparent to the surface structure and the narrow reading for the DO obtains from an LF representation where both objects are reconstructed. Note that reconstructing both objects does not violate the MCR if the IO reconstructs first, followed by the reconstruction of the DO under the assumption that the MCR is checked for each instance of reconstruction.

Though MG was originally proposed to account for the pattern of remnant movement in German, it holds of remnant movement in Japanese as well.

- (5) a. John-ga [CP Taro-ga [Obj Hanako-o] nagutta to] itta
 John-Nom Taro-Nom Hanako-Acc hit Comp said
 ‘John said that Taro hit Hanako.’
 b. *[CP Taro-ga t_{Obj} nagutta to] [Obj Hanako-o] John-ga t_{CP} itta
 Taro-Nom hit Comp Hanako-Acc John-Nom said

Structure (5b) stems from (5a) through long-distance scrambling of the embedded object *Hanako-o* ‘Hanako-Acc,’ followed by scrambling of the embedded clause. The outcome violates Müller’s Generalization.

Now a deeper question should be addressed. Why does Müller’s Generalization hold? I would like to suggest that it follows from the MCR under the assumption that remnants (and fronted predicates) have to undergo reconstruction for interpretation (Heycock 1995)). At LF the remnant CP needs to be reconstructed for interpretive reasons, but the MCR blocks it because the remnant, which has been scrambled to its surface position, is going to be reconstructed across another scrambled phrase, *Hanako-o* ‘Hanako-Acc.’ In a nutshell, reconstruction is prohibited by the MCR though necessary for interpretation. Thus, (5b) is ungrammatical. This way, Müller’s Generalization is derived.

3 Possible Alternatives

This section is devoted to a discussion of an alternative analysis for the data that I interpreted as evidence for the MCR. Sauerland and Elbourne (2002) present a noteworthy account for the scope freezing effect in multiple scrambling constructions, and Sauerland (1999) has made a proposal that can derive Müller’s Generalization.² In what follows, I will review the alternatives and show why the MCR is superior to them. I will first discuss Sauerland’s (1999) explanation of Müller’s Generalization and then turn to Sauerland and Elbourne’s (2002) account of the scrambling data, which is dependent on the conclusion drawn by Sauerland (1999).

²Kitahara (1997) made essentially the same proposal, but I will stick to Sauerland’s proposal for the sake of exposition. My criticism about Sauerland’s account applies to Kitahara’s as well.

3.1 Alternative account of Müller's Generalization

Assuming the framework envisaged by Chomsky (1995), Sauerland (1999) proposes that all kinds of feature-driven movement including scrambling obey the Minimal Link Condition (MLC).

(6) Minimal Link Condition

K attracts α only if there is no β , β closer to K, such that K attracts β .

(Chomsky 1995:310)

(7) β is closer to K than α if β c-commands α .

(Chomsky 1995:358)

Given the MLC, Müller's Generalization falls out as a consequence. Let me explain how, using the schematic derivation for remnant movement, as drawn in (8).

(8) Step 1: $[F_2 [_{FP1} XP [F_1 [_{YP} t_{XP}]]]]$

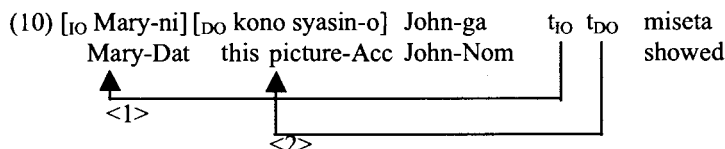
Step 2: $[_{FP2} [_{YP} t_{XP}] [F_2 [_{FP1} XP [F_1 t_{YP}]]]]$

Remnant movement involves two steps as illustrated above. The first step is movement of XP out of YP, which makes YP a remnant. This movement is irrelevant to the MLC. The critical step is the second one, by which remnant YP moves across XP. At this step, F2 must unambiguously attract YP. If F2 can also attract XP, XP counts as a closer element, and the MLC prevents F2 from attracting YP. In the framework assumed by Sauerland, that two phrases undergo the same type of movement means that the two phrases could be attracted by the same head. Therefore, the two movement steps involved in remnant movement cannot be of the same type, as is dictated by Müller's Generalization.

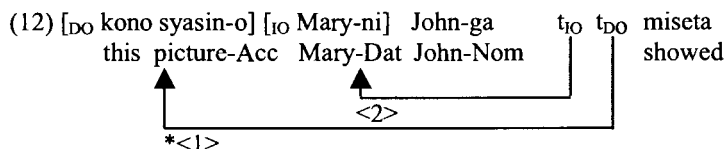
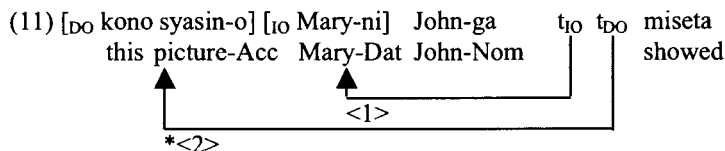
The MLC-based account is the opposite to the MCR-based one in that Müller's Generalization is derived from the minimality condition on movement rather than the one on reconstruction. At first sight, these two proposals may seem indistinguishable. As I will show presently, however, there is a fatal flaw with the MLC-based account. Considering that the vast majority of evidence for Müller's Generalization comes from scrambling data, it is necessary for the proponents of the MLC-based account to verify the assumption that scrambling obeys the MLC. However, there is no compelling evidence for it. Rather, counterevidence is much easier to find in the domain of multiple scrambling. Examine (9).

- (9) a. John-ga Mary-ni kono syasin-o miseta
 John-Nom Mary-Dat this picture-Acc showed
 'John showed Mary a picture.'
- b. [_{IO} Mary-ni] [_{DO} kono syasin-o] John-ga t_{IO} t_{DO} miseta
 Mary-Dat this picture-Acc John-Nom showed
- c. [_{DO} kono syasin-o] [_{IO} Mary-ni] John-ga t_{IO} t_{DO} miseta
 this picture-Acc Mary-Dat John-Nom showed

As shown in (9b) and (9c), the order of the scrambled objects can freely be permuted. This is unexpected in light of the MLC because whenever one derivation satisfies the minimality condition, the other would violate it. How are the two derivations both allowed? Let me briefly review Sauerland's account. First, to handle the structure in (9b), Sauerland postulates the derivation illustrated in (10).



In this derivation, the IO is first scrambled, which does not violate the MLC, and then the DO is scrambled beneath the landing site of the IO, which does not violate the MLC either, under the assumption that traces are invisible to attraction/movement. This is how the well-formedness of (9b) is explained. By contrast, there seems to be no way to derive (9c). Whichever object undergoes scrambling first, the DO necessarily moves across the IO, as shown in (11) and (12).



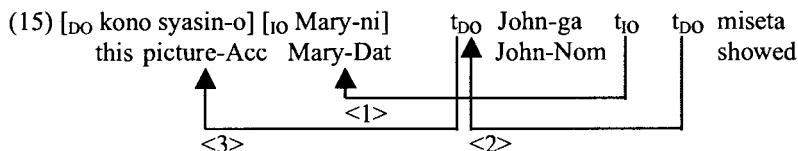
To avoid this problem, Sauerland resorts to the notion of equidistance given in (13).

- (13) γ and β are equidistant from α iff γ and β are in the same minimal domain.³ (Chomsky 1995:356)

Once equidistance is introduced, the definition of closeness in (14) needs to be modified accordingly.

- (14) β is closer to K than α if β c-commands α and α and β are not in the same minimal domain.

Armed with equidistance, Sauerland posits the derivation in (15) for (9c).



The first step is scrambling of the IO into a specifier of some head, say T. The second step is scrambling of the DO into the lower specifier of T. At this point of the derivation, the two objects are in the same minimal domain and thus equidistant from a higher attracting head. As a result, the DO can be scrambled across the IO without violating the MLC.

By resorting to the notion of equidistance, Sauerland seems to succeed in solving the problem attendant upon the assumption that scrambling is a feature-driven movement that obeys the MLC. It should be noted, however, that this solution voids his original explanation of Müller's Generalization because equidistance would yield a derivation that does not violate the MLC, as shown in (16).

- (16) Step 1: [F₂ [F_{FP1} XP [F₁ [Y_P t_{XP}]]]]
 Step 2: [F₂ [F_{FP1} XP [[Y_P t_{XP}] [F₁ t_{YP}]]]]
 Step 3: [F_{FP2} [Y_P t_{XP}] [F₂ [F_{FP1} XP [t_{YP} [F₁ t_{YP}]]]]]

Here the crucial step is the second one, by which XP and YP are rendered

³Putting aside the exact definition of the minimal domain, we can understand that γ and β are in the same minimal domain iff γ and β are specifiers of the same head.

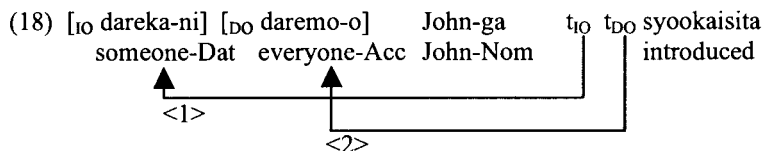
equidistant from F2. Consequently, the third step that moves YP over XP would be sanctioned whether or not the two phrases undergo the same type of movement or not. This voids Sauerland's original MLC-based account of Müller's Generalization.

3.2 Alternative Account of Scope-Freezing in Multiple Scrambling Constructions

Sauerland and Elbourne (2002) attempt to eliminate reconstruction as a phenomenon. They argue that phrases that seem to be reconstructed all move in the PF component and do not feed semantics while phrases that move in syntax always feed semantics. They also argue, assuming the T-model architecture, that movement in syntax takes place prior to movement in PF. In an attempt to verify this hypothesis, they take the scope-freezing phenomenon in multiple scrambling constructions as evidence for it. Let me illustrate how their proposal works for the Japanese example we saw in 2.1.

- (17) a. John-ga [_{IO} dareka-ni] [_{DO} daremo-o] syookaisita
 John-Nom someone-Dat everyone-Acc introduced
 'John introduced everyone to someone.' ($\exists > \forall$, $*\forall > \exists$)
- b. [_{IO} dareka-ni] [_{DO} daremo-o] John-ga _{t_{IO}} _{t_{DO}} syookaisita
 someone-Dat everyone-Acc John-Nom introduced
 ($\exists > \forall$, $*\forall > \exists$)

Since they assume with Sauerland (1999) that scrambling obeys the MLC, they analyze the derivation of (17b) as shown in (18).



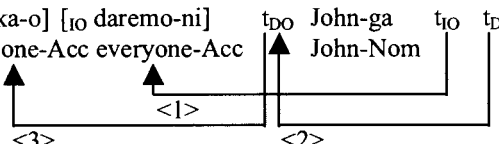
Given the hypothesis that PF-movement always reconstructs while syntactic movement never does, in order to derive inverse scope reading, the movement of IO must occur in PF and the movement of DO must occur in syntax, which yields an LF in which the IO is interpreted inside the scope of the DO. However, this derivation is unavailable in the model they assume, where PF-movement must occur after syntactic movement. The derivation that would yield inverse scope violates the MLC by having the DO undergo scrambling in syntax across the IO that is to undergo scrambling later in PF. The licit

derivations for (17b) are that in which both IO and DO undergo syntactic movement or PF-movement, and that in which the IO undergoes syntactic movement while the DO undergoes PF-movement. All these derivations produce a surface scope reading.

Let us now consider an instance of multiple scrambling in which the surface order between IO and DO is flipped. As pointed out in footnote 1, this example is scopally ambiguous.

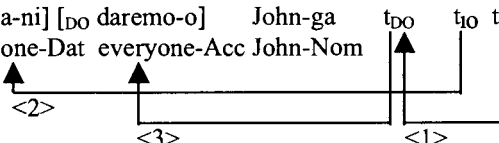
- (19) [_{DO} dareka-o] [_{IO} daremo-ni] John-ga _{t_{IO}} _{t_{DO}} syookaisita
 someone-Acc everyone-Acc John-Nom introduced
 'John introduced everyone to someone.' ($\exists > \forall, \forall > \exists$)

Sauerland and Elbourne, inheriting the analysis presented in Sauerland (1999), argue that the surface structure (19) is derived in three steps, as illustrated in (20).

- (20) [_{DO} dareka-o] [_{IO} daremo-ni] _{t_{DO}} John-ga _{t_{IO}} _{t_{DO}} syookaisita
 someone-Acc everyone-Acc John-Nom introduced


Several derivations are conceivable for both surface and inverse scope. For example, suppose the first and second steps take place in syntax. Then, surface scope obtains if the third step occurs in syntax, and inverse scope results if the third step is PF-movement. Both derivations observe the MLC and the ordering between syntactic movement and PF-movement. The scope ambiguity is thus explained.

Although it seems that Sauerland and Elbourne nicely accounts for the difference between (17b) and (19), their account has a serious drawback in that it would allow (17b) to be derived in the way sketched in (21).

- (21) [_{IO} dareka-ni] [_{DO} daremo-o] John-ga _{t_{DO}} _{t_{IO}} _{t_{DO}} syookaisita
 someone-Dat everyone-Acc John-Nom introduced


Here the first step is syntactic movement of the DO into the same minimal domain that contains the IO. At this point, the two objects are equidistant from a higher attractor and either one can move next. Suppose the second

and third steps are both PF-movement. Then, inverse scope would obtain, contrary to fact. Here again, equidistance, which is inevitable for Sauerland and Elbourne to handle cases of apparent violation of the MLC, voids their overall proposal. Therefore, their proposal cannot be a rival to my proposal.

4 Conclusion

This paper has shown that reconstruction obeys a minimality condition, which cannot be reduced to a minimality condition on movement. This can be taken as an indication that reconstruction is an operation in its own right, rather than an automatic consequence of the copy theory of movement, under which reconstruction would most naturally be considered to be an optional operation (Aoun and Li 2003) and the minimality condition would be unexpected.

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